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[10191/1234]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Dieter SCHULER et al.
Serial No. : 09/446,390
Filed : December 21, 1999
For : **ELECTRIC MACHINE HAVING A COMMUTATOR**
Examiner : Dang Dinh Le
Group Art Unit 2834

Commissioner for Patents
Washington, D.C. 20231

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Jong H. Lee

RESPONSE TO AN OFFICE ACTION

Sir:

In response to the Office Action dated June 27, 2002, please enter the following
remarks.

REMARKS

Claims 6 and 10-24 are pending in the present application. It is respectfully
submitted that all of the presently pending claims are allowable, and reconsideration of the
present application is requested for at least the following reasons.

**I. THE 35 U.S.C. § 102(b) REJECTION BASED
ON BURR SHOULD BE WITHDRAWN**

The Examiner has rejected Claims 15, 20, 21 and 24 under 35 U.S.C. § 102(b)
as being anticipated by U.S. Patent No. 2,172,045 to Burr et al. (the "Burr" reference). It is
respectfully submitted that the Burr reference does not anticipate the subject matter of any of
Claims 15, 20, 21 and 24.

Independent claim 15 recites "an end face of the brush with a plurality of channels; and a supply of lubricant in an area of the end face of the brush . . . , wherein the plurality of channels along the collector end face are open at each end along the collector end face." Independent claim 20 recites "at least one brush, wherein a collector-side end face of the at least one brush has a plurality of channels; and a supply of lubricant . . . , wherein the at least one brush contains the lubricant at a location which is at least one of: (a) in or on the collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the channels are open at each end along the collector-side end face."

To reject a claim under 35 U.S.C. § 102(b), the Office must demonstrate that each and every claim limitation is identically disclosed in a single prior art reference. (*See Scripps Clinic & Research Foundation v. Genentech, Inc.*, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991)). "The identical invention must be shown in as complete detail as is contained in the claim." M.P.E.P. § 2131. Applicants respectfully submit that Burr does not disclose each and every element of the claimed invention.

Burr is directed to a brush 1 having narrow recesses or slots 2 filled with insert or filler 3. However, there is no disclosure in Burr that the plurality of channels (31) along the collector end face (30) are open at each end along the collector end face (30), as recited in Claims 15 and 20 of the present application. In fact, Burr teaches away from Applicants' invention in column 1, lines 30-33, where it is stated that filler material is "**permanently secured** in a recess formed in the brush body," and in column 4, lines 2-6, where it is stated that "it is preferred to locate the strips close to opposite edges of the working face of the brush, since this arrangement of the lubricating strips tends to provide a smoother riding brush." (See column 4, lines 2-6). Burr clearly indicates that slots or recesses 2 are filled with a plastic heat-hardenable composition 3, which is baked to solid state and integrally united to the body of the brush 1. Once the composition 3 is baked to solid state and integrally united to the body of the brush 1 as intended, the recess 2 is completely filled with a solid material, and it is impossible for the solid-filled recess 2 of Burr to be equivalent to "the plurality of channels along the collector end face [which] are open at each end along the collector end face."

Furthermore, to the extent the Examiner relies on Figure 2 of Burr, the slots or recesses 2 in Figure 2 are shown as being open, since Figure 2 shows an **intermediate stage** of the brush 1 prior to the filling of the slots 2 with plastic composition or filler 3 (see column

1, lines 48-50). Therefore, if the slots 2 are open, then this would also mean that the brush 1 according to Figure 2 does not contain *any lubricant at all*, which in turn means that all the features regarding the lubricant recited in Claims 15 and 20 could not have been anticipated by Burr.

However, Burr clearly indicates the intent to provide slots or recesses 2 that are *filled* with a plastic heat-hardenable composition. The brush body 1 is baked to solidify the insert 3 and provide one or more lubricating strips extending to the bearing face. The one or more lubricating strips are integrally united to the body of the brush 1. (See column 2, lines 6-11). Since these slots or recesses 2 are completely filled with the plastic material, they cannot be interpreted as grooves that are open at each end along the collector-side end face, as recited in Claims 15 and 20. Therefore, Claims 15 and 20 are novel and not anticipated by Burr.

Additionally, since Burr pursues a completely different manner of lubrication (baked plastic), it would not have been obvious for one skilled in the art to modify the invention in an attempt to approximate the subject matter of Claims 15 and 20.

Claims 21 and 24 depend from, and include all the limitations of, Claims 20 and 15, respectively, and therefore Claims 21 and 24 are likewise not anticipated by Burr. Furthermore, Burr does not teach the limitation that "the collector has a plurality of grooves," as recited in Claims 21 and 24.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §102 (b) of Claims 15, 20, 21 and 24 is hereby respectfully requested.

II. THE 35 U.S.C. § 103(a) REJECTION BASED ON BURR IN VIEW OF PORTAIL SHOULD BE WITHDRAWN

Claims 6, 10, 11, 14, 16, 19, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burr in view of U.S. Patent No. 2,555,997 to Portail (the "Portail" reference). Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Independent Claim 6 recites "at least one brush; . . . and a supply of oil lubricant . . . , wherein the at least one brush contains the lubricant at least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the

brush has a plurality of grooves along the collector-side end face and wherein the grooves are open at each end along the collector-side end face.” Independent Claim 10 recites “an end face; and a supply of oil lubricant in an area of the end face . . . , wherein the brush has a plurality of grooves along the collector end face and wherein the grooves are open at each end along the collector end face.” Independent Claims 15 and 20 have been discussed above.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143. Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness.

Burr is directed to a brush 1 having narrow recesses or slots 2 filled with **solid insert or filler** 3. Portail discloses a sliding contact of electric machines where a thin layer of a lubricant is spread over commutator 1 via brush 2. However, the combination of Burr and Portail fails to teach or suggest all the limitations of the present claimed invention of independent Claims 6 and 10. In particular, the combination of Burr and Portail fails to teach that the plurality of grooves (31) along the collector end face (30) are open at each end along the collector end face (30), as recited in Applicants’ independent Claims 6 and 10. Furthermore, Burr *teaches away* from Applicants’ claimed invention by stating that the solid filler material is “**permanently secured in a recess** formed in the brush body,” (column 1, lines 30-33), and that “it is preferred to locate **the strips** close to opposite edges of the working face of the brush, since this arrangement of the lubricating strips tends to provide a smoother riding brush.” (Column 4, lines 2-6). Therefore, Burr cannot teach or suggest a plurality of open grooves along the collector-side end face, as recited in Claims 6 and 10.

Additionally, the asserted combination of Portail and Burr is unwarranted since the proposed modification would render both the invention of Burr as well as the invention of

Portail unsatisfactory for their intended purposes. Therefore there is no motivation to make the asserted combination of Portail and Burr. Specifically, Applicants note that Burr teaches the use of a filler material that is “permanently secured in a recess formed in the brush body,” (Burr, column 1, lines 30-33), while Portail teaches thin film (11) that can be fed through brush 2. (Portail, column 4, lines 13-15). Thin film (11) of Portail cannot be permanently secured to the recesses (2) of Burr, as the thin film is a liquid or semi-fluid (Portail, column 2, lines 7-8), and the permanently securable filler material (3) of Burr cannot be fed through the brush (2) of Portail. Accordingly, the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Since the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, there is no motivation to make the asserted combination.

For the foregoing reasons, independent Claims 6 and 10 are allowable over the combination of Burr and Portail. Claims 11, 14, 16, 19, 22 and 23 depend from, and include all the limitations of, Claims 10 or 6, and therefore Claims 11, 14, 16, 19, 22 and 23 are similarly allowable over the combination of Burr and Portail.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §103(a) of Claims 6, 10, 11 14, 16, 19, 22 and 23 is hereby respectfully requested.

III. THE 35 U.S.C. § 103(a) REJECTION BASED ON BURR IN VIEW OF PORTAIL AND FURTHER IN VIEW OF GRUNEWALD SHOULD BE WITHDRAWN

Claims 12 and 17 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Burr in view of Portail and further in view of U.S. Patent No. 3,841,906 to Grunewald et al. (the “Grunewald” reference). Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Applicants note that Claims 12 and 17 depend from previously-discussed Claims 10 and 6, respectively. Furthermore, Applicants note that Grunewald fails to disclose a brush wherein the brush has a plurality of grooves along the collector-side end face and wherein the grooves are open at each end along the collector-side end face, as recited in Claims 6 and 10. Accordingly, since Grunewald does not overcome the deficiencies of Burr

and Portail as discussed in section II above with respect to Claims 10 and 6, the combination of Burr, Portail and Grunewald fails to render obvious the subject matter of dependent Claims 12 and 17.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §103(a) of Claims 12 and 17 is hereby respectfully requested.

**IV. THE 35 U.S.C. § 103(a) REJECTION BASED ON BURR
IN VIEW OF PORTAIL AND FURTHER IN
VIEW OF ROGELEIN SHOULD BE WITHDRAWN**

Claims 13 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burr in view of Portail and further in view of U.S. Patent No. 4,820,948 to Rogelein et al. (the “Rogelein” reference). Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Applicants note that Claims 13 and 18 depend from previously-discussed Claims 10 and 6, respectively. Furthermore, Applicants note that Rogelein fails to disclose a brush wherein the brush has a plurality of grooves along the collector-side end face and wherein the grooves are open at each end along the collector-side end face, as recited in Claims 6 and 10. Accordingly, since Rogelein does not overcome the deficiencies of Burr and Portail as applied against Claims 10 and 6, the combination of Burr, Portail and Rogelein fails to render obvious the subject matter of dependent Claims 13 and 18.

Independent of the above, Applicants note that Rogelein fails to disclose a dust guard for protecting the brush, as recited in Claims 13 and 18. Rogelein merely discloses an electric motor 1 having a rubber collar 29 to trap oil 34. The rubber collar of Rogelein cannot be construed as teaching or suggesting a dust guard since the only teaching in Rogelein with respect to the rubber collar indicates that oil is trapped in the rubber collar to prevent the oil from migrating from the bearing to the commutator (see column 2, lines 41-44 and column 3, lines 2-6). For this additional reason, Claims 13 and 18 are not rendered obvious by the combination of Burr, Portail and Rogelein.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §103 (a) of Claims 13 and 18 is hereby respectfully requested.

**V. THE 35 U.S.C. § 103(a) REJECTION BASED ON BRUHN
IN VIEW OF PORTAIL SHOULD BE WITHDRAWN**

Claims 6, 10, 11, 14-16 and 19-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,909,077 to Bruhn (the “Bruhn” reference) in view of Portail. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

It is respectfully submitted that there is no suggestion in the prior art to modify Bruhn with Portail in the manner contemplated by any of independent Claims 6, 10, 15, and 20. In In re Lee, 61 USPQ2d 1430 (Fed. Cir. 2002), the Court considered a claim directed to a method of automatically displaying functions of a video display device. In rejecting the obviousness rejection based on a combination of two references, the Court stated that the Examiner’s “conclusory” statements regarding motivation to combine “do not adequately address the issue of motivation to combine. This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority.” Id. at 1434. According to the Court, the rejection by the Board of the need for any specific hint or suggestion in a particular reference amounted to an “[o]mission of a relevant factor” justifying reversal. Id. at 1435. The Court further added that the “common knowledge and common sense” standard on which the Board relied, “even if assumed to derive from the agency’s expertise, do not substitute for authority when the law requires authority.” Id.

The Examiner asserts that since Bruhn and Portail are from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the other. However, there is no suggestion in Bruhn or Portail to modify the grooves of Bruhn with the lubricant of Portail, to arrive at the claimed subject matter. The purpose for the grooves in Bruhn is abrasion resistance and noise reduction. (See Abstract of Bruhn). The object of Portail is to provide “improved sliding and rotating contacts for electric machines, and in particular commutators and brushes cooperating with these commutators.” (Column 1, lines 14-17). There is no teaching or suggestion in either Bruhn or Portail concerning reducing the deleterious presence of oil lubricant in the electric machine, or of lowering the risk of conducting parasitic currents, as described in the present application. (See specification at page 3, lines 15-23). According to the Court in In re Lee, the conclusory reasoning of the Office Action suggesting the modification of the reference based solely on the identification of a common field of endeavor is insufficient to sustain an obviousness rejection. Since there is

no suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references, the 35 U.S.C. §103(a) rejection of Claims 6, 10, 15 and 20 should be withdrawn.

For the foregoing reasons, independent Claims 6, 10, 15 and 20 are allowable over the combination of Bruhn and Portail. Claims 11, 14, 16, 19, 22 and 23 depend from, and include all the limitations of, one of Claims 6, 10, 15 or 20, and therefore Claims 11, 14, 16, 19, 22 and 23 are similarly allowable over the combination of Bruhn and Portail.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §103(a) of Claims 6, 10, 11, 14-16 and 19-24 is hereby respectfully requested.

**VI. THE 35 U.S.C. § 103(a) REJECTION BASED ON
BRUHN IN VIEW OF PORTAIL AND FURTHER
IN VIEW OF GRUNEWALD SHOULD BE WITHDRAWN**

Claims 12 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruhn in view of Portail and further in view of Grunewald. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Applicants note that Claims 12 and 17 depend from previously-discussed Claims 10 and 6, respectively. Furthermore, Grunewald fails to remedy the deficiencies of Bruhn and Portail as applied against Claims 10 and 6. Therefore, Claims 12 and 17 are allowable over the applied references for at least the reasons discussed in connection with Claims 10 and 6.

Additionally, the object of Grunewald is “to provide a method of treating a carbon brush blank in which the brush exhibits characteristics of operability at elevated temperatures and low humidity with reduced wear rate.” (See column 1, lines 56-59). Therefore, Grunewald provides no motivation to combine the teaching of Grunewald with the noise reduction teaching of Bruhn. Accordingly, the asserted combination of Bruhn and Grunewald is improper.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §103(a) of Claims 12 and 17 is hereby respectfully requested.

**VII. THE 35 U.S.C. § 103(a) REJECTION BASED ON
BRUHN IN VIEW OF PORTAIL AND FURTHER
IN VIEW OF ROGELEIN SHOULD BE WITHDRAWN**

Claims 13 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruhn in view of Portail and further in view of Rogelein. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

Applicants note that Claims 13 and 18 depend from previously-discussed Claims 10 and 6, respectively. Furthermore, Rogelein fails to remedy the deficiencies of Bruhn and Portail as applied against parent Claims 10 and 6. Therefore, Claims 13 and 18 are allowable over the applied references for at least the reasons stated in connection with Claims 10 and 6.

Additionally, the object of Rogelein is "to prevent the lubricant migrating on to the commutator segments," (see column 1, lines 46-47). Therefore, Rogelein provides no motivation to combine the oil containment teaching of Rogelein with the noise reduction teaching of Bruhn. Accordingly, the combination of Bruhn and Rogelein is improper.

As noted in section IV above, Rogelein fails to disclose a dust guard for protecting the brush, as recited in Claims 13 and 18. For this additional reason, Claims 13 and 18 are not rendered obvious by the combination of Bruhn, Portail and Rogelein.

For at least the reasons discussed above, withdrawal of the rejection under 35 U.S.C. §103(a) of Claims 13 and 18 is hereby respectfully requested.

VIII. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the rejection of Claims 6 and 10-24 should be withdrawn.

Respectfully submitted,

Dated: 11/13, 2002

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